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DEPARTMENTAL CONFERENCES.

GEOGRAPHY.

Mr. J. Paul Goode, of the University of Chicago, discussed

THE FUNCTION OF MAP-DRAWING IN THE TEACHING OF GEOGRAPHY.

We draw maps because (1) geography deals primarily with space-relation, and all record comes sooner or later to a distribution in a map; (2) "the place for the atlas is in the head," *i. e.*, we need definite mental pictures of the map, at least of the fundamentals of space-relation; (3) the study of the essentials, and the exercise of the muscles in reproducing the form, train the attention and fix a clear mental image.

The style of map-drawing varies with the purpose for which the map is wanted, and ranges from the rapidly drawn sketch map to the refined mathematical construction, where accuracy of detail is all-important.

In the rapid free-hand drawing the prime requisites are, first, accuracy in fundamentals, that is, in the gross generalization of the details of outline and trend, or, in other words, the reduction of the map to its lowest terms; and, second, speed in drawing. A map so drawn is the shorthand of geography. These principles, applied to the continents, give outlines so simple as to be as easily made as any six letters in the Roman alphabet. These simple forms, and the space-relations represented in them, are as fundamental as the paradigm in a language, and should be drilled on in the same way.

The second style of drawing is the careful, studied black-board work in which days are spent on a single map. The value of such work is openly questioned. The time might be better spent in the library or in the field.

The third method of map-drawing puts the emphasis on the

representation of the third dimension. The simplest phase is where a single contour is drawn; for example, the thousand-foot level, the lands below and above it being tinted in. This is very simple, can be done with extreme rapidity, and has the highest value for the representation of the largest areas. A more difficult phase of representation is by hachures, or shading—the so-called "relief modeling," lying on the borderland between a map and a picture. This is qualitative, and is of high value in physiography and in the study of the fine detail of relief; but its value decreases very rapidly with the increase in the area represented, and in continents it may easily teach larger untruth than truth. It is inferior in the representation of exact altitude and slope values, and may cost so much time and effort as to be a questionable luxury.

A fourth style is the careful, accurate mechanical drafting. This is quantitative, and of the highest value in cultivating the hand and the head. Cross-sections are drawn to scale, stereograms to show structure, various diagrams to illustrate the work in hand, or distributions shown in carefully made maps. Such drawing calls for unlimited skill and taste, and is the best of training in the appreciation of the fine and artistic in maps.

The subject was further discussed by Mr. Frank W. Darling, of the Chicago Normal School:

The subject-matter of geography arranges itself into a natural causal order. The most causal and most basal is the physical factor, upon which closely depend the climatic conditions; these largely determine the productive resources; and upon these three depend the industrial forces. The social and political organization and location of centers respectively are the effects of the preceding factors. Throughout this enumeration no one factor is as influential a determining cause of each of the others as is the physical factor. It follows that, in order properly to teach the geography of any region, the student must be thoroughly acquainted with the topography of that region.

Though political or outline maps may represent to a skilled student something of the topography of the interior, yet they are as far from conveying any such idea to the child as would be a description of the region in shorthand.

For years we have attempted to teach geography by using the most indefinite symbols of the region, the political map—a mere outline with highly colored arbitrary divisions, a symbol reduced to a hieroglyph. How

much of a causal basis can the child obtain from this? Everything which he learns of that region must stand in his memory alone, without a foundation of reason. One of the educational crimes which have gone hand in hand with the old formal teaching was the failure to give a definite image, for a base, upon which the child could build. One of the indications of the contempt in which representation of topography has been held is the absence of any good maps of American publication. At present the complaint of teachers, who see the need of giving the child a definite conception of the topography, is that they can get no relief representations. Yet a well-prepared teacher has all that is really necessary. By a sand model the child may be given, not an accurate, detailed expression of the region, but a true caricature, and as such representing the character of the region. By chalk-modeling a more detailed topographic map may be made. The children can easily master this form of expression, if they begin it with their first geography study. The drawing of the political map should come as the last representation of the region, and should be interpreted by the topographic representation. This same principle is just as true when applied to the representation of land forms in the study of physical geography in the high school or college. We are so often blinded by our own clear conception of a land form that we fail to give the child any definite representation which should come by actual observation of the thing itself, or its representation in miniature showing the third dimension, or at least a definite projection of its third dimension by chalk-modeling or some equally graphic representation.

Finally, in order that the student may obtain a definite working conception, he must reproduce it by some definite form of expression.